



#10

SEQUENCE LISTING

<110> LAGARIAS, JOHN

KOICHI, TAKAYUKI

FRANKENBERG, NICOLE

GAMBETTA, GREGORY

MONTGOMERY, BERONDA

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<140> US 09/870,406

<141> 2001-05-29

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<151> 2001-02-26

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<151> 2000-06-08

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Met Ala Leu Ser Met Glu Phe Gly Phe Ser Ile Gly Ser Cys

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Phe Lys Ala Pro Asn Pro Pro Val Leu Ile Ser Ala Ser Pro Asn Lys

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Ile Asn Phe Thr Leu Arg Arg Arg Lys Lys Arg Phe Leu Leu Arg Val

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Ser Ala Val Ser Tyr Lys Glu Phe Ala Glu Ser Ala Leu Glu Glu Thr

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agg aaa agg atc gtt ctt gaa cct tca cat ctc cag gtatatgcaa 479

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 Glu
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Gln Lys	
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Asp Pro Gly His Gly Leu	
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Leu	Asp	Leu	Asn	Pro	Leu	His	Gln	Leu	Thr	Asp	Gln	Thr	Asp	Tyr	Gln	145	150	155	160
Asp	Lys	Tyr	Tyr	Asn	Lys	Ile	Met	Ser	Ile	Tyr	His	Lys	Tyr	Ala	Glu	165	170	175	
Thr	Phe	Pro	Trp	Gly	Gly	Lys	Leu	Thr	Gly	Glu	Ser	Ile	Lys	Phe	Phe	180	185	190	
Ser	Pro	Leu	Val	Met	Trp	Thr	Arg	Phe	Ser	Ser	Ser	Lys	Glu	Lys	His	195	200	205	
Lys	Ala	Leu	Phe	Ser	Ala	Phe	Leu	Glu	Tyr	Tyr	Gln	Ala	Trp	Leu	Glu	210	215	220	
Met	Thr	Ile	Gln	Val	Arg	Glu	Glu	Met	Glu	Pro	Ser	His	Val	Arg	Ala	225	230	235	240
Asn	Cys	Glu	Ala	Gln	His	Lys	Tyr	Leu	Thr	Trp	Arg	Ala	Gln	Lys	Asp	245	250	255	
Pro	Gly	His	Gly	Leu	Leu	Lys	Arg	Leu	Val	Gly	Glu	Ala	Lys	Ala	Lys	260	265	270	
Glu	Leu	Leu	Arg	Asp	Phe	Leu	Phe	Asn	Gly	Val	Asp	Glu	Leu	Gly	Thr	275	280	285	
Lys	Thr	Phe	Ile	Asp	Tyr	Phe	Pro	Glu	Tyr	Gln	Thr	Glu	Asp	Gly	Thr	290	295	300	

B1
Cont

Val Ser Asp Lys Arg Ser Ile Ile Gly Lys Ser Tyr Glu Thr Arg Pro
305 310 315 320

Trp Asp Leu Thr Gly Gln Phe Ile Gly
325

<210> 35

<211> 236

<212> PRT

<213> Synechococcus sp.

<400> 35

Met Phe Asp Ser Phe Leu Asn Glu Leu His Ser Asp Ile Thr Lys Arg
1 5 10 15

Gly Gly Ser Pro Leu Pro Leu Pro Glu Gly Leu Glu Glu Cys Arg Ser
20 25 30

Ser Lys Ser Ser Ser Val Ile Gln Ser Trp Leu Trp Asp Val Pro Gly
35 40 45

Phe Arg Arg Trp Arg Val Thr Arg Leu Asp Ala Gly Asp Ser Leu Gln
50 55 60

Val Phe Asn Ser Val Ala Tyr Pro Asp Tyr Asn Tyr Asp His Pro Leu
65 70 75 80

Met Gly Val Asp Leu Leu Trp Phe Gly Ala Arg Gln Lys Leu Val Ala
85 90 95

Val Leu Asp Phe Gln Pro Leu Val Gln Asp Lys Asp Tyr Leu Asp Arg
100 105 110

Tyr Phe Ser Gly Leu Lys Glu Leu Asn Gln Arg Phe Pro Asp Leu Asn
115 120 125

Gly Glu Glu Thr Met Arg Ser Phe Asp Pro Asn Gln Tyr Phe Ser Ser
130 135 140

Trp Leu Leu Phe Cys Arg Gly Gly Ala Glu Gln Ala Asp Leu Ser Leu
145 150 155 160

Pro Lys Ala Phe Ser Ala Phe Leu Lys Ala Tyr Trp Asp Leu His Asp
165 170 175

Asn Ala Lys Ser Ile Pro Ser Thr Ile Pro Pro Glu Glu Val Lys Asn
180 185 190

Leu Gln Asp Lys Tyr Asp Ile Tyr Ser Ala Glu Arg Asp Pro Ala His

31
Cont

195 200 205
 Gly Leu Phe Thr Ser His Phe Gly Lys Asp Trp Ser Asn Arg Phe Leu
 210 215 220
 His Glu Phe Leu Phe Pro Ala Ser Ser Ser His Lys
 225 230 235
 <210> 36
 <211> 257
 <212> PRT
 <213> Synechococcus sp.

 <400> 36
 Met Thr Asn Gln Arg Phe Lys Ser Thr Asp Pro Val Asn Ile Glu Gly
 1 5 10 15
 Trp Ser Trp Gln Pro Phe Leu Glu Asp Ala Ile Lys Arg Leu Glu Gly
 20 25 30
 Leu Asn Val Glu Pro Tyr Pro Val Pro Asp Arg Phe Leu Gln Arg Glu
 35 40 45
 Asp Gln Thr Gly Ser Lys Ser Lys Ser Ile Pro Val Thr Thr Ala Thr
 50 55 60
 Trp Ala Cys Lys Thr Glu Lys Phe Arg Gln Val Arg Ala Ala Cys Val
 65 70 75 80
 Ser Ala Gly Ser Ala Ala Ser Val Leu Asn Phe Val Ile Asn Pro Lys
 85 90 95
 Ser Thr Tyr Gly Leu Pro Phe Phe Gly Gly Asp Leu Val Thr Phe Pro
 100 105 110
 Ala Gly His Leu Leu Ala Leu Asp Leu Gln Pro Ala Ile Lys Thr Asp
 115 120 125
 Glu Val His Thr Thr His Val Trp Asp Arg Leu Ile Pro Ile Phe Glu
 130 135 140
 Arg Trp Arg Asp Gln Leu Pro Tyr Gly Gly Pro Ile Pro Glu Glu Ala
 145 150 155 160
 Gln Pro Phe Phe Ser Pro Gly Phe Leu Trp Thr Arg Leu Pro Leu Gly
 165 170 175
 Glu Glu Gly Asp Glu Leu Ile Gln Ser Ile Val Arg Pro Ala Phe Asn
 180 185 190

Asp Tyr Leu Asp Leu Tyr Leu Glu Leu Ala Ala Ser Ala Glu Arg Val
195 200 205

Thr Asp Glu Arg Ser Glu Val Leu Leu Gln Gly Gln Arg Lys Tyr Thr
210 215 220

Asp Tyr Arg Ala Glu Lys Asp Pro Ala Arg Gly Met Leu Thr Arg Phe
225 230 235 240

His Gly Ser Glu Trp Thr Glu Ala Tyr Ile His Thr Val Leu Phe Asp
245 250 255

Leu

<210> 37

<211> 241

<212> PRT

<213> Prochlorococcus marinus

<400> 37

Met Asn Lys Leu Met Leu Gln Asp Leu His Asn Asn Leu Lys Arg Arg
1 5 10 15

Ile Ile Ser His Gly Gly Lys Pro Ile Glu Val Glu Asn Gly Met Ser
20 25 30

Glu Arg Phe Ser His Lys Gln Asp Thr Val Ile Lys Ser Trp Leu Trp
35 40 45

Asp Val Pro Gly Phe Arg Arg Trp Arg Val Thr Arg Met Asp Ala Gly
50 55 60

Asp Lys Leu Gln Val Leu Asn Ser Val Ala Tyr Pro Ala Tyr Thr Asn
65 70 75 80

Asp Lys Pro Ile Leu Gly Ile Asp Ile Leu Trp Phe Gly Leu Lys Arg
85 90 95

Lys Leu Val Ala Val Leu Asp Phe Gln Pro Leu Val Gln Glu Glu Arg
100 105 110

Tyr Phe Cys Arg Tyr Tyr Lys Asp Leu Gln Ile Leu Lys Asn Arg Phe
115 120 125

Val Asp Phe Asn Ser Gln Lys Thr Met Lys Ile Tyr Asp Ser Asn Lys
130 135 140

Tyr Phe Ser Pro Trp Val Leu Leu Tyr Asn Gly Ser Phe Asp Asp Leu
145 150 155 160

31
Cons

Gln Cys Ser Leu Ala Lys Ile Leu Asp Glu Phe Leu His Ala Tyr Trp
165 170 175

Gln Val Asp Asn Asn Asn Ser Arg Glu Tyr Ile Lys Ile Ile Pro Ser
180 185 190

Lys Val Glu Gln Leu His Ile Asn Tyr Asp Ile Tyr Ser Ala Glu Arg
195 200 205

Asp Pro Ala His Gly Leu Phe Lys Ser Tyr Phe Gly Gln Thr Trp Ala
210 215 220

Asp Gln Phe Val Arg Glu Phe Leu Phe Pro His Ser His Leu Thr Ala
225 230 235 240

Asp

<210> 38

<211> 257

<212> PRT

<213> PROCHLOROCOCCUS MARINUS

<400> 38

Met Ile Ile Lys Arg Asp Asn Ser Leu Ser Lys Ile Asp Leu Arg Asp
1 5 10 15

Trp Ile Trp Thr Pro Phe Phe Asn Asp Leu Val Asp Lys Leu Ser Val
20 25 30

Phe Glu Ile Glu Pro Tyr Pro Val Ser His Asp Phe Leu Ser Lys Glu
35 40 45

Ser Ile Thr Gly Ser Arg Arg Asn Pro Val His Val Thr Thr Leu Thr
50 55 60

Trp Ala Ala Lys Phe Glu Lys Ile Lys Gln Val Arg Leu Ala Cys Ile
65 70 75 80

Lys Gly Gly Glu Ser Leu Ser Val Phe Asn Leu Leu Ile His Pro Leu
85 90 95

Asn Asp Tyr Asp Leu Pro Phe Phe Gly Ala Asp Phe Val Thr Leu Pro
100 105 110

Asn Gly His Leu Leu Ala Leu Asp Leu Gln Pro Ala Leu Lys Leu Asp
115 120 125

Asn Ile His Thr Glu Asn Val Trp Pro Arg Leu Ile Pro Leu His Asp

130					135					140					
His	Trp	Gln	Ser	Leu	Leu	Pro	Ser	Gly	Gly	Glu	Ile	Pro	Lys	Glu	Ala
145					150					155					160
Glu	Pro	Tyr	Phe	Ser	Pro	Gly	Phe	Leu	Trp	Ser	Arg	Leu	Pro	Leu	Ser
				165					170					175	
Lys	Glu	Ser	Asp	Asn	Ile	Ile	Ser	Glu	Ile	Leu	Arg	Pro	Ala	Phe	Gly
			180					185					190		
Glu	Tyr	Leu	Ser	Leu	Tyr	Ile	Glu	Leu	Leu	His	Ile	Ala	Lys	Pro	Leu
		195					200					205			
Lys	Lys	Glu	Arg	Ala	Leu	Lys	Ile	Leu	Glu	Gly	Gln	Lys	Ala	Tyr	Ile
	210					215					220				
Asn	Tyr	Arg	Ser	Thr	Lys	Asp	Pro	Ala	Arg	Ala	Met	Leu	Cys	Arg	Phe
225					230					235					240
Tyr	Gly	Lys	Glu	Trp	Thr	Glu	Asp	Tyr	Ile	His	Lys	Val	Leu	Phe	Asn
				245					250					255	

Ile

<210> 39

<211> 248

<212> PRT

<213> Synechocystis sp.

<400> 39

B' Cont

Met	Ala	Val	Thr	Asp	Leu	Ser	Leu	Thr	Asn	Ser	Ser	Leu	Met	Pro	Thr
1				5					10					15	
Leu	Asn	Pro	Met	Ile	Gln	Gln	Leu	Ala	Leu	Ala	Ile	Ala	Ala	Ser	Trp
			20					25					30		
Gln	Ser	Leu	Pro	Leu	Lys	Pro	Tyr	Gln	Leu	Pro	Glu	Asp	Leu	Gly	Tyr
		35					40					45			
Val	Glu	Gly	Arg	Leu	Glu	Gly	Glu	Lys	Leu	Val	Ile	Glu	Asn	Arg	Cys
	50					55					60				
Tyr	Gln	Thr	Pro	Gln	Phe	Arg	Lys	Met	His	Leu	Glu	Leu	Ala	Lys	Val
65					70					75					80
Gly	Lys	Gly	Leu	Asp	Ile	Leu	His	Cys	Val	Met	Phe	Pro	Glu	Pro	Leu
				85					90					95	

Tyr Gly Leu Pro Leu Phe Gly Cys Asp Ile Val Ala Gly Pro Gly Gly
 100 105 110
 Val Ser Ala Ala Ile Ala Asp Leu Ser Pro Thr Gln Ser Asp Arg Gln
 115 120 125
 Leu Pro Ala Ala Tyr Gln Lys Ser Leu Ala Glu Leu Gly Gln Pro Glu
 130 135 140
 Phe Glu Gln Gln Arg Glu Leu Pro Pro Trp Gly Glu Ile Phe Ser Glu
 145 150 155 160
 Tyr Cys Leu Phe Ile Arg Pro Ser Asn Val Thr Glu Glu Glu Arg Phe
 165 170 175
 Val Gln Arg Val Val Asp Phe Leu Gln Ile His Cys His Gln Ser Ile
 180 185 190
 Val Ala Glu Pro Leu Ser Glu Ala Gln Thr Leu Glu His Arg Gln Gly
 195 200 205
 Gln Ile His Tyr Cys Gln Gln Gln Gln Lys Asn Asp Lys Thr Arg Arg
 210 215 220
 Val Leu Glu Lys Ala Phe Gly Glu Ala Trp Ala Glu Arg Tyr Met Ser
 225 230 235 240
 Gln Val Leu Phe Asp Val Ile Gln
 245

<210> 40

<211> 490

<212> PRT

<213> Anabaena sp.

<400> 40

Met Ser Leu Thr Ser Ile Pro Ser Leu Arg Glu Gln Gln His Pro Leu
 1 5 10 15
 Ile Arg Gln Leu Ala Asp Cys Ile Glu Glu Val Trp His Gln His Leu
 20 25 30
 Asp Leu Ser Pro Tyr His Leu Pro Ala Glu Leu Gly Tyr Val Glu Gly
 35 40 45
 Arg Leu Glu Gly Glu Lys Leu Thr Ile Glu Asn Arg Cys Tyr Gln Thr
 50 55 60
 Pro Gln Phe Arg Lys Met His Leu Glu Leu Ala Lys Val Gly Asn Met
 65 70 75 80

B1
Cont

Leu Asp Ile Leu His Cys Val Met Phe Pro Arg Pro Glu Tyr Asp Leu
 85 90 95
 Pro Met Phe Gly Cys Asp Leu Val Gly Gly Arg Gly Gln Ile Ser Ala
 100 105 110
 Ala Ile Ala Asp Leu Ser Pro Val His Leu Asp Arg Thr Leu Pro Glu
 115 120 125
 Ser Tyr Asn Ser Ala Leu Thr Ser Leu Asn Thr Leu Asn Phe Ser Gln
 130 135 140
 Pro Arg Glu Leu Pro Glu Trp Gly Asn Ile Phe Ser Asp Phe Cys Ile
 145 150 155 160
 Phe Val Arg Pro Ser Ser Pro Glu Glu Glu Ala Met Phe Leu Gly Arg
 165 170 175
 Val Arg Glu Phe Leu Gln Val His Cys Gln Gly Ala Ile Ala Ala Ser
 180 185 190
 Pro Val Ser Ala Glu Gln Lys Gln Gln Ile Leu Ala Gly Gln His Asn
 195 200 205
 Tyr Cys Ser Lys Gln Gln Gln Asn Asp Lys Thr Arg Arg Val Leu Glu
 210 215 220
 Lys Ala Phe Gly Val Asp Trp Ala Glu Asn Tyr Met Thr Thr Val Leu
 225 230 235 240
 Phe Asp Leu Pro Glu Met Ser Leu Thr Ser Ile Pro Ser Leu Arg Glu
 245 250 255
 Gln Gln His Pro Leu Ile Arg Gln Leu Ala Asp Cys Ile Glu Glu Val
 260 265 270
 Trp His Gln His Leu Asp Leu Ser Pro Tyr His Leu Pro Ala Glu Leu
 275 280 285
 Gly Tyr Val Glu Gly Arg Leu Glu Gly Glu Lys Leu Thr Ile Glu Asn
 290 295 300
 Arg Cys Tyr Gln Thr Pro Gln Phe Arg Lys Met His Leu Glu Leu Ala
 305 310 315 320
 Lys Val Gly Asn Met Leu Asp Ile Leu His Cys Val Met Phe Pro Arg
 325 330 335
 Pro Glu Tyr Asp Leu Pro Met Phe Gly Cys Asp Leu Val Gly Gly Arg
 340 345 350
 Gly Gln Ile Ser Ala Ala Ile Ala Asp Leu Ser Pro Val His Leu Asp
 355 360 365
 Arg Thr Leu Pro Glu Ser Tyr Asn Ser Ala Leu Thr Ser Leu Asn Thr

B1
 cont

370	375	380
Leu Asn Phe Ser Gln Pro Arg Glu Leu Pro Glu Trp Gly Asn Ile Phe		
385	390	395 400
Ser Asp Phe Cys Ile Phe Val Arg Pro Ser Ser Pro Glu Glu Glu Ala		
	405	410 415
Met Phe Leu Gly Arg Val Arg Glu Phe Leu Gln Val His Cys Gln Gly		
	420	425 430
Ala Ile Ala Ala Ser Pro Val Ser Ala Glu Gln Lys Gln Gln Ile Leu		
	435	440 445
Ala Gly Gln His Asn Tyr Cys Ser Lys Gln Gln Gln Asn Asp Lys Thr		
	450	455 460
Arg Arg Val Leu Glu Lys Ala Phe Gly Val Asp Trp Ala Glu Asn Tyr		
	465	470 475 480
Met Thr Thr Val Leu Phe Asp Leu Pro Glu		
	485	490

<210> 41

<211> 245

<212> PRT

<213> Nostoc punctiforme

<400> 41

Met Ser Phe Thr Ser Met Pro Ser Leu Arg Glu Gln Gln His Pro Leu	
1	5 10 15
Ile Arg Gln Leu Ala Asp Cys Ile Glu Ala Ala Trp His Gln His Leu	
	20 25 30
Asp Leu Ser Pro Tyr His Leu Pro Asp Glu Leu Gly Tyr Val Glu Gly	
	35 40 45
Arg Leu Glu Gly Glu Lys Leu Thr Ile Glu Asn Arg Cys Tyr Gln Thr	
	50 55 60
Pro Gln Phe Arg Lys Met His Leu Glu Leu Ala Asn Ile Gly Asn Met	
	65 70 75 80
Leu Asp Ile Leu His Cys Val Met Phe Pro Arg Pro Gln Tyr Asn Leu	
	85 90 95
Pro Met Phe Gly Cys Asp Leu Val Gly Gly Arg Gly Gln Ile Ser Ala	
	100 105 110

BI
Cont

Ala Ile Ala Asp Leu Ser Pro Ile Gln Leu Glu Arg Thr Leu Pro Glu
115 120 125

Ser Tyr Thr Thr Ala Leu Ala Gln Leu Pro Val Leu Asn Phe Ser Gln
130 135 140

Pro Arg Glu Leu Pro Glu Trp Gly Asn Ile Phe Ser Asp Phe Cys Ile
145 150 155 160

Phe Val Arg Pro Gly Ser Pro Glu Glu Glu Ala Met Phe Leu Ser Arg
165 170 175

Val Arg Glu Phe Leu Asp Ile His Cys Met Gln Ala Ile Ala Ser His
180 185 190

Pro Val Ser Val Glu Gln Val Thr Gln Asn Leu Ala Gly Gln His Asn
195 200 205

Tyr Cys Thr Lys Gln Gln Gln Asn Asp Lys Thr Arg Arg Val Leu Glu
210 215 220

Lys Ala Phe Gly Pro Val Trp Ala Glu Asn Tyr Met Thr Thr Val Leu
225 230 235 240

Phe Asp Leu Pro Thr
245

<210> 42

<211> 248

<212> PRT

<213> Synechocystis sp.

<400> 42

Met Ala Val Thr Asp Leu Ser Leu Thr Asn Ser Ser Leu Met Pro Thr
1 5 10 15

Leu Asn Pro Met Ile Gln Gln Leu Ala Leu Ala Ile Ala Ala Ser Trp
20 25 30

Gln Ser Leu Pro Leu Lys Pro Tyr Gln Leu Pro Glu Asp Leu Gly Tyr
35 40 45

Val Glu Gly Arg Leu Glu Gly Glu Lys Leu Val Ile Glu Asn Arg Cys
50 55 60

Tyr Gln Thr Pro Gln Phe Arg Lys Met His Leu Glu Leu Ala Lys Val
65 70 75 80

Gly Lys Gly Leu Asp Ile Leu His Cys Val Met Phe Pro Glu Pro Leu
85 90 95

B1
Cont

Tyr Gly Leu Pro Leu Phe Gly Cys Asp Ile Val Ala Gly Pro Gly Gly
 100 105 110
 Val Ser Ala Ala Ile Ala Asp Leu Ser Pro Thr Gln Ser Asp Arg Gln
 115 120 125
 Leu Pro Ala Ala Tyr Gln Lys Ser Leu Ala Glu Leu Gly Gln Pro Glu
 130 135 140
 Phe Glu Gln Gln Arg Glu Leu Pro Pro Trp Gly Glu Ile Phe Ser Glu
 145 150 155 160
 Tyr Cys Leu Phe Ile Arg Pro Ser Asn Val Thr Glu Glu Glu Arg Phe
 165 170 175
 Val Gln Arg Val Val Asp Phe Leu Gln Ile His Cys His Gln Ser Ile
 180 185 190
 Val Ala Glu Pro Leu Ser Glu Ala Gln Thr Leu Glu His Arg Gln Gly
 195 200 205
 Gln Ile His Tyr Cys Gln Gln Gln Gln Lys Asn Asp Lys Thr Arg Arg
 210 215 220
 Val Leu Glu Lys Ala Phe Gly Glu Ala Trp Ala Glu Arg Tyr Met Ser
 225 230 235 240
 Gln Val Leu Phe Asp Val Ile Gln
 245

<210> 43

<211> 247

<212> PRT

<213> Synechocystis sp.

<400> 43

Met Gln Ser Pro Pro Ser Glu Ser Ser Ser Thr Val Ala Pro Leu Ile
 1 5 10 15
 Pro Ser Leu Ala Glu Thr Ile Arg Gly Ala Trp Ile Gly Leu Pro Glu
 20 25 30
 Leu Lys Pro Leu Asp Ala Asp Ser Asp Phe Ser Ser Ile Glu Gly Gln
 35 40 45
 Leu Glu Gly Asp Asp Leu Leu Ile Arg Asn Glu Leu Leu Cys Cys Arg
 50 55 60
 Val Gly Arg Lys Ile His Leu Glu Leu Ala Arg Leu Gly Arg Gly Leu

B1
Cont.

65		70		75		80
Gln Ile Leu His Cys Val Trp Phe Pro Asp Pro Arg Phe Asp Leu Pro						
		85		90		95
Ile Phe Gly Ala Asp Ile Val Ala Gly Pro Ala Gly Val Ser Ala Ala						
		100		105		110
Ile Val Asp Leu Ser Pro Val Ser Gly Thr Leu Pro Ser Gly Ile Glu						
		115		120		125
Thr Ala Leu Ala Gly Thr Pro Ser Pro Ala Phe Arg Gln Val Arg Asp						
		130		135		140
Leu Pro Gly Trp Gly Thr Ile Phe Ser Pro His Val Cys Phe Ile Arg						
		145		150		155
Pro Asp Gly Ala Glu Glu Glu Val Leu Phe Arg Ser Arg Val Glu Glu						
		165		170		175
Val Leu Thr Ile Leu Arg Thr Ala Val Leu Gln Thr Ala Cys Glu Pro						
		180		185		190
Ala Thr Ala Ala Ser Thr Ile Arg Arg Tyr Glu Gly Gln Leu Ser Tyr						
		195		200		205
Cys Leu Gln Gln Lys Arg Asn Asp Lys Thr Arg Arg Val Leu Glu Lys						
		210		215		220
Ala Phe Asp Ala Ser Trp Ala Asp Arg Tyr Ile Glu Glu Leu Leu Phe						
		225		230		235
Asp Asp Pro Leu Pro Pro Gly						
		245				

<210> 44

<211> 243

<212> PRT

<213> Prochlorococcus marinus

<400> 44

Leu Asn Leu Leu Ser Lys Ser Leu Thr Lys Thr Lys Leu Ile Asp Pro														
1				5				10					15	
Leu Ile Leu Thr Leu Leu Gln Asn Ile Lys Val Gln Arg Ser Lys Leu														
				20				25					30	
Asn Asp Leu Asn Cys Ile Glu Val Asp Pro Lys Leu Ser Asn Ile Ile														
				35				40					45	

Ser Asn Glu Glu Gly Lys Glu Leu Tyr Ile Glu Asn Glu Phe Tyr Lys
50 55 60

Ala Lys Gly Phe Arg Lys Leu His Ile Glu Val Ala Glu Phe Ser Lys
65 70 75 80

Ser Leu Lys Ile Leu His Cys Val Phe Phe Pro Asp Pro Lys Tyr Asp
85 90 95

Ile Pro Ile Phe Gly Met Asp Leu Val Lys Val Asn Glu Leu Val Ser
100 105 110

Ala Ala Ile Val Asp Leu Ser Pro Ser Ser Lys Asn Gln Asn Leu Lys
115 120 125

Tyr Asp His Leu Leu Ser His Ile Asp Lys Ser Val Phe Lys Ser Lys
130 135 140

Arg Glu Ile Pro Ile Trp Gly Asn Ile Phe Ser Lys Asn Val Phe Phe
145 150 155 160

Ala Ser Leu Lys Asn Glu Ser Glu Lys Asn Ala Phe Cys Lys Ile Val
165 170 175

Asp Asn Tyr Leu Ser Val Leu Ile Gln Leu Ser Gln Ser Thr Ser Pro
180 185 190

Asp Ser Asp Tyr Glu Ile Ile Glu Glu Arg Ile Asn Tyr Gln Lys Asn
195 200 205

Tyr Cys Val Gln Gln Met Lys Asn Glu Lys Thr Ser Leu Val Leu Leu
210 215 220

Lys Tyr Phe Asp Lys Val Trp Val Asp Glu Tyr Ile Lys Lys Val Leu
225 230 235 240

Phe Asp Phe

<210> 45

<211> 236

<212> PRT

<213> Synechocystis sp.

<400> 45

Met Phe Asp Ser Phe Leu Asn Glu Leu His Ser Asp Ile Thr Lys Arg
1 5 10 15

Gly Gly Ser Pro Leu Pro Leu Pro Glu Gly Leu Glu Glu Cys Arg Ser
20 25 30

Ser Lys Ser Ser Ser Val Ile Gln Ser Trp Leu Trp Asp Val Pro Gly
 35 40 45
 Phe Arg Arg Trp Arg Val Thr Arg Leu Asp Ala Gly Asp Ser Leu Gln
 50 55 60
 Val Phe Asn Ser Val Ala Tyr Pro Asp Tyr Asn Tyr Asp His Pro Leu
 65 70 75 80
 Met Gly Val Asp Leu Leu Trp Phe Gly Ala Arg Gln Lys Leu Val Ala
 85 90 95
 Val Leu Asp Phe Gln Pro Leu Val Gln Asp Lys Asp Tyr Leu Asp Arg
 100 105 110
 Tyr Phe Ser Gly Leu Lys Glu Leu Asn Gln Arg Phe Pro Asp Leu Asn
 115 120 125
 Gly Glu Glu Thr Met Arg Ser Phe Asp Pro Asn Gln Tyr Phe Ser Ser
 130 135 140
 Trp Leu Leu Phe Cys Arg Gly Gly Ala Glu Gln Ala Asp Leu Ser Leu
 145 150 155 160
 Pro Lys Ala Phe Ser Ala Phe Leu Lys Ala Tyr Trp Asp Leu His Asp
 165 170 175
 Asn Ala Lys Ser Ile Pro Ser Thr Ile Pro Pro Glu Glu Val Lys Asn
 180 185 190
 Leu Gln Asp Lys Tyr Asp Ile Tyr Ser Ala Glu Arg Asp Pro Ala His
 195 200 205
 Gly Leu Phe Thr Ser His Phe Gly Lys Asp Trp Ser Asn Arg Phe Leu
 210 215 220
 His Glu Phe Leu Phe Pro Ala Ser Ser Ser His Lys
 225 230 235

<210> 46

<211> 235

<212> PRT

<213> Synechocystis sp.

<400> 46

Met Phe Asp Pro Phe Leu Glu Glu Leu Gln Thr Gly Ile Gln Ala Arg
 1 5 10 15
 Gly Gly Ile Ser Val Glu Val Pro Ala Gly Leu Glu His Asn Gln Ser

B1
cont

20						25						30					
Gln	Lys	Gly	Ser	Ser	Thr	Ile	Gln	Ser	Trp	Leu	Trp	Gln	Val	Pro	Gly		
35						40						45					
Phe	Arg	Arg	Trp	Arg	Val	Thr	Arg	Leu	Asp	Ala	Gly	Asp	Ser	Leu	Gln		
50						55				60							
Val	Leu	Asn	Ser	Val	Ala	Tyr	Pro	Asp	Phe	Asp	Leu	Asp	His	Pro	Leu		
65				70						75				80			
Met	Gly	Val	Asp	Leu	Leu	Trp	Phe	Gly	Ala	Arg	Gln	Lys	Leu	Val	Ala		
			85						90			95					
Val	Leu	Asp	Phe	Gln	Pro	Leu	Val	Gln	Asp	Lys	Asp	Tyr	Leu	Asp	Arg		
			100						105			110					
His	Phe	Asp	Gly	Leu	Lys	Asp	Leu	Asn	Ala	Arg	Phe	Pro	Asp	Leu	Asn		
		115						120				125					
Gly	Glu	Glu	Thr	Met	Arg	Ser	Phe	Asp	Pro	Asn	Gln	Tyr	Phe	Ser	Ser		
130						135				140							
Trp	Leu	Leu	Phe	Cys	Arg	Gly	Gly	Ser	Glu	Glu	Ala	Asp	Arg	Ser	Leu		
145				150						155				160			
Pro	Lys	Ala	Phe	Ser	Ala	Phe	Leu	Lys	Ala	Tyr	Trp	Gly	Leu	His	Asp		
			165						170			175					
Glu	Ala	Ser	Lys	Glu	Pro	Ser	Ser	Ile	Ser	Pro	Gly	Asp	Val	Glu	Arg		
			180						185			190					
Leu	Gln	Asn	Ala	Tyr	Asp	Val	Tyr	Ser	Ala	Glu	Arg	Asp	Pro	Ala	His		
195						200						205					
Gly	Leu	Phe	Thr	Ser	His	Phe	Gly	Lys	Glu	Trp	Ser	Asp	Arg	Phe	Leu		
210						215				220							
His	Glu	Phe	Leu	Phe	Pro	Ala	Ser	Gln	Pro	Ala							
225				230				235									

<210> 47

<211> 241

<212> PRT

<213> Prochlorococcus sp.

<400> 47

Met	Asn	Lys	Leu	Met	Leu	Gln	Asp	Leu	His	Asn	Asn	Leu	Lys	Arg	Arg
1				5					10					15	

Ile Ile Ser His Gly Gly Lys Pro Ile Glu Val Glu Asn Gly Met Ser
 20 25 30
 Glu Arg Phe Ser His Lys Gln Asp Thr Val Ile Lys Ser Trp Leu Trp
 35 40 45
 Asp Val Pro Gly Phe Arg Arg Trp Arg Val Thr Arg Met Asp Ala Gly
 50 55 60
 Asp Lys Leu Gln Val Leu Asn Ser Val Ala Tyr Pro Ala Tyr Thr Asn
 65 70 75 80
 Asp Lys Pro Ile Leu Gly Ile Asp Ile Leu Trp Phe Gly Leu Lys Arg
 85 90 95
 Lys Leu Val Ala Val Leu Asp Phe Gln Pro Leu Val Gln Glu Glu Arg
 100 105 110
 Tyr Phe Cys Arg Tyr Tyr Lys Asp Leu Gln Ile Leu Lys Asn Arg Phe
 115 120 125
 Val Asp Phe Asn Ser Gln Lys Thr Met Lys Ile Tyr Asp Ser Asn Lys
 130 135 140
 Tyr Phe Ser Pro Trp Val Leu Leu Tyr Asn Gly Ser Phe Asp Asp Leu
 145 150 155 160
 Gln Cys Ser Leu Ala Lys Ile Leu Asp Glu Phe Leu His Ala Tyr Trp
 165 170 175
 Gln Val Asp Asn Asn Asn Ser Arg Glu Tyr Ile Lys Ile Ile Pro Ser
 180 185 190
 Lys Val Glu Gln Leu His Ile Asn Tyr Asp Ile Tyr Ser Ala Glu Arg
 195 200 205
 Asp Pro Ala His Gly Leu Phe Lys Ser Tyr Phe Gly Gln Thr Trp Ala
 210 215 220
 Asp Gln Phe Val Arg Glu Phe Leu Phe Pro His Ser His Leu Thr Ala
 225 230 235 240

Asp

<210> 48

<211> 236

<212> PRT

<213> Prochlorococcus sp.

<400> 48

B' Cont

Met Phe Glu Ser Leu Lys Asn Phe Val Lys Thr Asn Ile Glu Asp Leu
 1 5 10 15
 Asp Gly Lys Glu Leu Glu Ile Ser Lys Glu Phe Lys Glu His His Asn
 20 25 30
 Lys Asp Ser Lys Tyr Ile Ile Lys Asn Trp Ile Phe Glu Ser Gln Gln
 35 40 45
 Tyr Arg Lys Trp Arg Ile Thr Lys Leu Asp Gly Gly Asp Lys Leu Gln
 50 55 60
 Val Phe Asn Thr Val Ala Tyr Pro Asn Phe Lys Ser Glu Phe Pro Ile
 65 70 75 80
 Leu Gly Ala Asp Ile Leu Trp Phe Gly Thr Ser Gln Lys Leu Leu Ala
 85 90 95
 Ile Phe Asp Tyr Gln Pro Leu Ile Gln Glu Lys Lys Tyr Leu Gln Lys
 100 105 110
 Tyr Cys Ser Ser Leu Asp Phe Ile Lys Asn Gln Tyr Ser Val Phe Asp
 115 120 125
 Asn His Lys Met Lys Asn Ile Tyr Asp Ser Lys Lys Tyr Phe Ser Pro
 130 135 140
 Trp Val Met Ile Cys Arg Gly Asn Lys Leu Asn Leu Asp Arg Asp Leu
 145 150 155 160
 Asn Asn Ile Phe Cys Ser Phe Val Ser Asn Tyr Leu Thr Ile Asn Lys
 165 170 175
 Leu His Gln Asn Asn Gln Phe Leu Asp Leu Glu Gln Ile Lys Asn Asn
 180 185 190
 Gln Ile Asp Tyr Asp Lys Tyr Ser Ala Glu Lys Asp Pro Ala Asp Lys
 195 200 205
 Leu Phe Lys Thr Phe Phe Gly Glu Thr Trp Thr Glu Asn Phe Ile Asn
 210 215 220
 Asn Phe Leu Phe Thr Leu Asn His Asn Pro Leu Lys
 225 230 235

<210> 49

<211> 280

<212> PRT

<213> Nostoc punctiforme

<400> 49

Met Leu Asn Ser Gln Ser Pro Leu Arg Asn Val Ala Leu Phe Leu Ile
1 5 10 15

Asn Glu Thr Cys Met Ile Ala Ile Thr Tyr Phe His Ala Arg Val Asn
20 25 30

Lys Ser Cys Ser Met Tyr Lys Pro Phe Leu Glu Phe Leu Glu Lys Glu
35 40 45

Leu Phe Gln Arg Phe Asp Leu Gln Ser Arg Val Ile Pro Pro Gly Leu
50 55 60

Glu Phe Lys Val Ser Asp Arg Gly Arg Asn Pro Ala Thr Ile Arg Ser
65 70 75 80

Trp Cys Tyr Gln Ser Gln Glu Leu Arg Lys Ile Arg Tyr Thr Tyr Ile
85 90 95

Asp Ala Gly Glu Ser Ala Gln Ile Phe Asn Ser Val Val Tyr Pro Ser
100 105 110

His Asn Tyr Asp Leu Pro Leu Leu Gly Ile Asp Phe Leu Ser Phe Gly
115 120 125

Lys Val Lys Asn Leu Ile Val Leu Asp Phe Gln Pro Leu Phe Gln Asp
130 135 140

Glu Asp Tyr Gln Asn Lys Tyr Ile Ala Pro Leu Lys Tyr Leu His Asn
145 150 155 160

Lys Tyr Pro Asp Leu Ala Gln Asn Leu Glu Met Lys Phe Tyr Asp Ala
165 170 175

Asn Gln Tyr Phe Ser Lys Tyr Leu Leu Phe Ala Lys Thr Asp Ala Glu
180 185 190

Thr Val Ser Thr Arg Val Phe Glu Ala Phe Gln Asp Tyr Leu Asn Leu
195 200 205

Tyr Trp Gln Met Leu Ala Asp Ala Gln Ala Leu His Asp Pro Glu Asp
210 215 220

Ile Gln Arg Ile Val Lys Ala Gln Lys Asp Tyr Asp Gln Tyr Ser Ala
225 230 235 240

Asp Arg Asp Pro Ala Ser Gly Leu Phe Ser Ser Tyr Phe Gly His Glu
245 250 255

Trp Ala Glu Arg Phe Leu His Glu Phe Leu Phe Glu Asp Ala Val Pro
260 265 270

Leu Ala Val Ser Ala Ser Lys Arg
275 280

B1
Cont

<210> 50

<211> 257

<212> PRT

<213> Synechocystis sp.

<400> 50

Met Thr Asn Gln Arg Phe Lys Ser Thr Asp Pro Val Asn Ile Glu Gly
1 5 10 15

Trp Ser Trp Gln Pro Phe Leu Glu Asp Ala Ile Lys Arg Leu Glu Gly
20 25 30

Leu Asn Val Glu Pro Tyr Pro Val Pro Asp Arg Phe Leu Gln Arg Glu
35 40 45

Asp Gln Thr Gly Ser Lys Ser Lys Ser Ile Pro Val Thr Thr Ala Thr
50 55 60

Trp Ala Cys Lys Thr Glu Lys Phe Arg Gln Val Arg Ala Ala Cys Val
65 70 75 80

Ser Ala Gly Ser Ala Ala Ser Val Leu Asn Phe Val Ile Asn Pro Lys
85 90 95

Ser Thr Tyr Gly Leu Pro Phe Phe Gly Gly Asp Leu Val Thr Phe Pro
100 105 110

Ala Gly His Leu Leu Ala Leu Asp Leu Gln Pro Ala Ile Lys Thr Asp
115 120 125

Glu Val His Thr Thr His Val Trp Asp Arg Leu Ile Pro Ile Phe Glu
130 135 140

Arg Trp Arg Asp Gln Leu Pro Tyr Gly Gly Pro Ile Pro Glu Glu Ala
145 150 155 160

Gln Pro Phe Phe Ser Pro Gly Phe Leu Trp Thr Arg Leu Pro Leu Gly
165 170 175

Glu Glu Gly Asp Glu Leu Ile Gln Ser Ile Val Arg Pro Ala Phe Asn
180 185 190

Asp Tyr Leu Asp Leu Tyr Leu Glu Leu Ala Ala Ser Ala Glu Arg Val
195 200 205

Thr Asp Glu Arg Ser Glu Val Leu Leu Gln Gly Gln Arg Lys Tyr Thr
210 215 220

Asp Tyr Arg Ala Glu Lys Asp Pro Ala Arg Gly Met Leu Thr Arg Phe
225 230 235 240

His Gly Ser Glu Trp Thr Glu Ala Tyr Ile His Thr Val Leu Phe Asp
245 250 255

Leu

<210> 51

<211> 262

<212> PRT

<213> Synechocystis sp.

<400> 51

Met Ser Ile Asp Leu Arg Ala Ser Ser Leu Asp Pro Val Gln Ile Pro
1 5 10 15

Gly Trp Arg Trp Gln Pro Phe Leu Asp Glu Ala Ser Ala Ala Leu Lys
20 25 30

Pro Phe Asn Pro Ser Pro Tyr Pro Ile Ala Glu Thr Phe Leu Gln Lys
35 40 45

Glu Gly Ser Thr Gly Ser Lys Ala Lys Pro Val Pro Val Thr Thr Ala
50 55 60

Thr Trp Ala Cys Ser Thr Asp Lys Leu Arg Gln Val Arg Cys Ala Cys
65 70 75 80

Val Glu Ala Gly Met Ala Ala Ser Val Leu Asn Phe Val Ile Asn Pro
85 90 95

Ser Cys Arg Phe Asp Leu Pro Phe Phe Gly Ala Asp Leu Val Thr Leu
100 105 110

Pro Asn Gly His Leu Leu Ala Leu Asp Leu Gln Pro Val Asp Lys Ala
115 120 125

Asp Pro Asp His Thr Gln Pro Val Trp Glu Arg Leu Met Pro Leu Phe
130 135 140

Glu Arg Trp Gln Ala Glu Leu Pro Asp Gly Gly Pro Ile Pro Glu Glu
145 150 155 160

Ala Gln Pro Tyr Phe Ser Pro Ala Phe Leu Trp Thr Arg Ile Pro Leu
165 170 175

Gly Glu Glu Gly Asp Glu Leu Ile Glu Arg Val Ile Arg Pro Ala Phe
180 185 190

Ile Asp Tyr Leu Gln Leu Tyr Leu Asn Leu Val Ala Glu Ala Glu Pro

B
Cont

195	200	205
Val Ser Asp Asp Arg Ala Glu Leu Leu Leu Ser Gly Gln Lys Arg Tyr		
210	215	220
Thr Ala Tyr Arg Ala Glu Lys Asp Pro Ala Arg Gly Met Leu Thr Arg		
225	230	235 240
Phe Tyr Gly Ser Glu Trp Thr Glu Ser Tyr Ile His Gly Val Leu Phe		
	245	250 255
Asp Leu Glu Asp Ala Ala		
260		

<210> 52

<211> 257

<212> PRT

<213> Prochlorococcus marinus

<400> 52

Met Ile Ile Lys Arg Asp Asn Ser Leu Ser Lys Ile Asp Leu Arg Asp	
1	5 10 15
Trp Ile Trp Thr Pro Phe Phe Asn Asp Leu Val Asp Lys Leu Ser Val	
	20 25 30
Phe Glu Ile Glu Pro Tyr Pro Val Ser His Asp Phe Leu Ser Lys Glu	
	35 40 45
Ser Ile Thr Gly Ser Arg Arg Asn Pro Val His Val Thr Thr Leu Thr	
	50 55 60
Trp Ala Ala Lys Phe Glu Lys Ile Lys Gln Val Arg Leu Ala Cys Ile	
65	70 75 80
Lys Gly Gly Glu Ser Leu Ser Val Phe Asn Leu Leu Ile His Pro Leu	
	85 90 95
Asn Asp Tyr Asp Leu Pro Phe Phe Gly Ala Asp Phe Val Thr Leu Pro	
	100 105 110
Asn Gly His Leu Leu Ala Leu Asp Leu Gln Pro Ala Leu Lys Leu Asp	
	115 120 125
Asn Ile His Thr Glu Asn Val Trp Pro Arg Leu Ile Pro Leu His Asp	
	130 135 140
His Trp Gln Ser Leu Leu Pro Ser Gly Gly Glu Ile Pro Lys Glu Ala	
145	150 155 160

BI
Cont

Glu Pro Tyr Phe Ser Pro Gly Phe Leu Trp Ser Arg Leu Pro Leu Ser
 165 170 175
 Lys Glu Ser Asp Asn Ile Ile Ser Glu Ile Leu Arg Pro Ala Phe Gly
 180 185 190
 Glu Tyr Leu Ser Leu Tyr Ile Glu Leu Leu His Ile Ala Lys Pro Leu
 195 200 205
 Lys Lys Glu Arg Ala Leu Lys Ile Leu Glu Gly Gln Lys Ala Tyr Ile
 210 215 220
 Asn Tyr Arg Ser Thr Lys Asp Pro Ala Arg Ala Met Leu Cys Arg Phe
 225 230 235 240
 Tyr Gly Lys Glu Trp Thr Glu Asp Tyr Ile His Lys Val Leu Phe Asn
 245 250 255

Ile

<210> 53

<211> 257

<212> PRT

<213> Prochlorococcus sp.

<400> 53

Met Leu Ile Gln Asn Thr Ile Phe Tyr Ser Gln Glu Trp Arg Trp Ala
 1 5 10 15
 Lys Phe Ile Lys Phe Leu Ile Ser Gln Leu Asp Asn Tyr His Cys Val
 20 25 30
 Glu His Lys Ile Ala Ser Asp Phe Ser Tyr Lys Glu Ser Ser Tyr Gly
 35 40 45
 Ser Lys Lys Ser Lys Lys Asn Ile Asn Leu Phe Thr Trp Gly Ala Thr
 50 55 60
 His Gln Lys Arg Ile Asn Phe Ala Arg Ala Val Cys Ile Asn Ser Pro
 65 70 75 80
 Asn Tyr Ser Val Leu Asn Phe Leu Ile Ile Pro Lys Thr Ser Tyr Asn
 85 90 95
 Ile Pro Phe Leu Gly Val Asp Phe Val Ser Leu Pro Thr Ser His Leu
 100 105 110
 Leu Val Leu Asp Phe Gln Pro Ser Leu Lys Val Glu Asn Gln Phe Asn
 115 120 125

Ser Glu Leu Leu Glu Gln Ile Ile Lys Leu Lys Lys Ser Cys His Ser
 130 135 140
 Ser Leu Pro Val Ala Glu Lys Met Ser Glu Gln Val Ala Lys Phe Phe
 145 150 155 160
 Ser Pro Gly Leu Ile Trp Ser Arg Leu Ala Lys His Gln Asp Ser Asp
 165 170 175
 Asn Leu Ile Glu Asn Gln Leu Tyr Asp Ser Phe Lys Glu Tyr Leu Asn
 180 185 190
 Leu Tyr Leu Lys Thr Leu Phe Glu Ser Glu Glu Val Gly His Gly Leu
 195 200 205
 Gln Gln Glu Leu Ile Asn Gly Gln Asn Asp Tyr Leu Asn Tyr Arg Arg
 210 215 220
 Asp Asn Asp Pro Ala Arg Pro Met Leu Ser Ser Leu Phe Gly Lys Asp
 225 230 235 240
 Phe Thr Glu Ser Leu Ile Asn Lys Val Leu Phe Ser Thr Asn Lys Val
 245 250 255

Leu

<210> 54

<211> 255

<212> PRT

<213> Nostoc punctiforme

<400> 54

Met Asn Ser Glu Arg Ser Asp Val Thr Leu Tyr Gln Pro Phe Leu Asp
 1 5 10 15
 Tyr Ala Ile Ala Tyr Met Arg Ser Arg Leu Asp Leu Glu Pro Tyr Pro
 20 25 30
 Ile Pro Thr Gly Phe Glu Ser Asn Ser Ala Val Val Gly Lys Gly Lys
 35 40 45
 Asn Gln Glu Glu Val Val Thr Thr Ser Tyr Ala Phe Gln Thr Ala Lys
 50 55 60
 Leu Arg Gln Ile Arg Ala Ala His Val Gln Gly Gly Asn Ser Leu Gln
 65 70 75 80
 Val Leu Asn Phe Val Ile Phe Pro His Leu Asn Tyr Asp Leu Pro Phe

BI
Cont

	85		90		95
Phe Gly Ala Asp Leu Val Thr Leu Pro Gly Gly His Leu Ile Ala Leu	100		105		110
Asp Met Gln Pro Leu Phe Arg Asp Asp Ser Ala Tyr Gln Ala Lys Tyr	115		120		125
Thr Glu Pro Ile Leu Pro Ile Phe His Ala His Gln Gln His Leu Ser	130		135		140
Trp Gly Gly Asp Phe Pro Glu Glu Ala Gln Pro Phe Phe Ser Pro Ala	145	150		155	160
Phe Leu Trp Thr Arg Pro Gln Glu Thr Ala Val Val Glu Thr Gln Val	165		170		175
Phe Ala Ala Phe Lys Asp Tyr Leu Lys Ala Tyr Leu Asp Phe Val Glu	180		185		190
Gln Ala Glu Ala Val Thr Asp Ser Gln Asn Leu Val Ala Ile Lys Gln	195		200		205
Ala Gln Leu Arg Tyr Leu Arg Tyr Arg Ala Glu Lys Asp Pro Ala Arg	210		215		220
Gly Met Phe Lys Arg Phe Tyr Gly Ala Glu Trp Thr Glu Glu Tyr Ile	225	230		235	240
His Gly Phe Leu Phe Asp Leu Glu Arg Lys Leu Thr Val Val Lys	245		250		255

<210> 55

<211> 329

<212> PRT

<213> Arapidopsis thaliana

<400> 55

Met Ala Leu Ser Met Glu Phe Gly Phe Ser Ile Gly Ser Cys Phe Lys	1	5		10		15
Ala Pro Asn Pro Pro Val Leu Ile Ser Ala Ser Pro Asn Lys Ile Asn	20		25		30	
Phe Thr Leu Arg Arg Arg Lys Lys Arg Phe Leu Leu Arg Val Ser Ala	35		40		45	
Val Ser Tyr Lys Glu Phe Ala Glu Ser Ala Leu Glu Glu Thr Arg Lys	50		55		60	

B1
Cont.

Arg Ile Val Leu Glu Pro Ser His Leu Gln Glu Lys Tyr Ser Ser Met
 65 70 75 80
 Thr Gly Leu Asp Gly Lys Thr Glu Leu Gln Met Leu Ala Phe Lys Ser
 85 90 95
 Ser Lys Ile Arg Leu Leu Arg Ser Met Ala Ile Glu Asn Glu Thr Met
 100 105 110
 Gln Val Phe Asp Phe Ala Gly Phe Met Glu Pro Glu Tyr Asp Thr Pro
 115 120 125
 Ile Phe Cys Ala Asn Phe Phe Thr Ser Thr Asn Val Asn Ile Val Val
 130 135 140
 Leu Asp Leu Asn Pro Leu His Gln Leu Thr Asp Gln Thr Asp Tyr Gln
 145 150 155 160
 Asp Lys Tyr Tyr Asn Lys Ile Met Ser Ile Tyr His Lys Tyr Ala Glu
 165 170 175
 Thr Phe Pro Trp Gly Gly Lys Leu Thr Gly Glu Ser Ile Lys Phe Phe
 180 185 190
 Ser Pro Leu Val Met Trp Thr Arg Phe Ser Ser Ser Lys Glu Lys His
 195 200 205
 Lys Ala Leu Phe Ser Ala Phe Leu Glu Tyr Tyr Gln Ala Trp Leu Glu
 210 215 220
 Met Thr Ile Gln Val Arg Glu Glu Met Glu Pro Ser His Val Arg Ala
 225 230 235 240
 Asn Cys Glu Ala Gln His Lys Tyr Leu Thr Trp Arg Ala Gln Lys Asp
 245 250 255
 Pro Gly His Gly Leu Leu Lys Arg Leu Val Gly Glu Ala Lys Ala Lys
 260 265 270
 Glu Leu Leu Arg Asp Phe Leu Phe Asn Gly Val Asp Glu Leu Gly Thr
 275 280 285
 Lys Thr Phe Ile Asp Tyr Phe Pro Glu Tyr Gln Thr Glu Asp Gly Thr
 290 295 300
 Val Ser Asp Lys Arg Ser Ile Ile Gly Lys Ser Tyr Glu Thr Arg Pro
 305 310 315 320
 Trp Asp Leu Thr Gly Gln Phe Ile Gly
 325

<210> 56

<211> 205

<212> PRT

<213> Hordeum vulgare

<400> 56

Met Asp Phe Met Leu Gln Ser Ser Leu His Cys Lys Val Pro Asn Gly
1 5 10 15

Ala Ile Asp Ile Thr Ser Leu Phe Ile Asn Leu Asn Ala Ser Thr Asp
20 25 30

Ala Pro His Phe Ile Met Glu Phe Ile Gln Gly Ser Pro Thr Ser Met
35 40 45

Val Val Leu Leu Asp Leu Leu Pro Arg Lys Asp Leu Ala Leu His Pro
50 55 60

Glu Tyr Ile Glu Lys Tyr Tyr Glu Asp Thr Glu Val Asp Lys Gln Arg
65 70 75 80

Lys Ile Ile Glu Gln Leu Pro Gln Ala Arg Pro Tyr Leu Ser Pro Ser
85 90 95

Leu Phe Val Arg Ser Ala Phe Ser Pro Thr Ala Val Phe Phe Thr Ile
100 105 110

Asp Cys Gly Lys Gly Gly Glu Gly Thr Leu Glu Glu Ile Val His Gly
115 120 125

His Leu Ala Ser Val Val Lys Gly Ile Leu Gln Ile Trp Leu Asp Thr
130 135 140

Cys Ala Ser Asp Ala Ser Glu Met Glu Glu Gly Glu Arg Glu Ile Met
145 150 155 160

Val Lys Arg Asp Arg Thr Val Arg Ser Lys Ser Ile Glu Val Asp Leu
165 170 175

Thr Ala Asn Leu Pro Arg Met Phe Gly Pro Asp Val Ser Gly Arg Ile
180 185 190

Ile Ala Glu Ile Arg Lys Ala Phe Gly Val Gln Glu Gly
195 200 205

<210> 57

<211> 319

<212> PRT

<213> Arapidopsis thaliana

B1
Cont

<400> 57

Met Ala Met Ile Phe Cys Asn Thr Leu Tyr Ser Ser Ser Ser Pro Ser
1 5 10 15

Tyr Leu Ser Pro Leu Thr Ser Lys Pro Ser Arg Phe Ser Lys Asn Leu
20 25 30

Arg Pro Arg Ala Gln Phe Gln Ser Met Glu Asp His Asp Asp His Leu
35 40 45

Arg Arg Lys Phe Met Glu Phe Pro Tyr Val Ser Pro Thr Arg Lys Gln
50 55 60

Leu Met Val Asp Leu Met Ser Thr Val Glu Asn Arg Leu Gln Ser Gln
65 70 75 80

Leu Leu Pro Cys Asn Leu Pro Pro Asp Val Arg Asn Phe Asn Asn Pro
85 90 95

Asn Gly Ser Ala Glu Ala Ser Leu His Ile Arg Ser Gly Asp Lys Ser
100 105 110

Ser Pro Ile Asp Phe Val Ile Gly Ser Trp Ile His Cys Lys Ile Pro
115 120 125

Thr Gly Val Ser Leu Asn Ile Thr Ser Ile Ser Gly Phe Leu Asn Ser
130 135 140

Ser Thr Lys Ala Pro Asn Phe Val Val Glu Leu Ile Gln Ser Ser Ser
145 150 155 160

Lys Ser Leu Val Leu Ile Leu Asp Leu Pro His Arg Lys Asp Leu Val
165 170 175

Leu Asn Pro Asp Tyr Leu Lys Glu Tyr Tyr Gln Asp Thr Ala Leu Asp
180 185 190

Ser His Arg Gln Ser Leu Leu Lys Leu Pro Glu Val Asn Pro Tyr Val
195 200 205

Ser Pro Ser Leu Phe Val Arg Ser Ala Phe Ser Pro Thr Ala Ser Met
210 215 220

Leu Lys Ile Asp Ala Glu Glu Glu Asp Lys Leu Glu Glu Ile Leu Arg
225 230 235 240

Asp His Val Ser Pro Ala Ala Lys Glu Val Leu Glu Val Trp Leu Glu
245 250 255

Arg Cys Val Lys Glu Glu Glu Glu Lys Ile Val Val Gly Glu Glu Glu
260 265 270

Arg Met Glu Leu Glu Arg Arg Asp Lys Ser Phe Arg Arg Lys Ser Ile

275

280

285

B1
Cont

Glu	Asp	Asp	Leu	Asp	Leu	Gln	Phe	Pro	Arg	Met	Phe	Gly	Glu	Glu	Val
290						295					300				

Ser	Ser	Arg	Val	Val	His	Ala	Ile	Lys	Glu	Ala	Phe	Gly	Val	Leu
305					310					315				
